Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (Previously presented) A computer implemented method of verifying events generated by an agent, said method comprising:

detecting an input signal at an input of said agent;

creating a transaction record corresponding to said input signal, each transaction record including storage for expectation records associated with that transaction record;

generating an expected output signal, corresponding to said transaction record, based at least in part on said input signal; and

signaling an error when said agent does not generate said expected output signal corresponding to said transaction record.

2.-3.   (Canceled).

4.   (Previously presented) An apparatus for producing expectations to verify events generated by an agent; comprising:

a.   at least one computer readable medium; and

b.   computer readable program code stored on said at least one computer readable medium, said computer readable program code comprising:

i.   program code for monitoring at least one input of said agent for a stimulus;

ii.   program code for creating a transaction record corresponding to said stimulus, each transaction record including storage for expectation records associated with that transaction record;

iii.   program code for generating an expectation of an event, corresponding to said transaction record, based at least in

part on said stimulus, wherein said event is expected to be generated by said agent as a result of said stimulus; and

iv.   program code for signaling an error when said agent does not generate said event corresponding to said transaction record.

5.   (Canceled).

6.   (Previously presented) The apparatus of claim 4, further comprising program code for signaling an error if said event is detected at said at least one output for which no expectation has been produced.

7.   (Original) The apparatus of claim 4, wherein said program code for monitoring said at least one input of said agent for said stimulus comprises program code for monitoring at least one input of a memory agent for said stimulus, said stimulus being selected from a group consisting of an initial request to perform a memory operation, a snoop response, and a read response.

8.   (Original) The apparatus of claim 4, wherein said program code for monitoring said at least one input of said agent for said stimulus comprises program code for identifying said stimulus using correlative information in said stimulus.

9.   (Original) The apparatus of claim 8, wherein said correlative information comprises a transaction identification.

10.   (Original) The apparatus of claim 8, wherein said correlative information comprises an address of memory being accessed by said stimulus and an identity of a source of said stimulus.

11.   (Original) The apparatus of claim 4, wherein said program code for monitoring said at least one input of said agent for said stimulus comprises program code for gathering said stimulus from a plurality of separately transmitted portions.

12.   (Canceled).

13.   (Previously presented) The apparatus of claim 4, wherein said program code for creating a transaction record comprises program code for creating a transaction record to contain information relating to a memory transaction involving said agent.

14.   (Original) The apparatus of claim 13, wherein said program code for producing said expectation of said event further comprises:

        program code for creating an expectation record to contain information relating to an expected event from said agent; and

        program code for associating said expectation record with said transaction record.

15.   (Original) The apparatus of claim 4, wherein said program code for producing said expectation of said event comprises program code for storing expected data associated with said expectation, said expected data being received in a plurality of separate incoming transmissions in said stimulus, said expected data being expected to be transmitted by said agent in a plurality of separate outgoing transmissions in said event.

16.   (Original) The apparatus of claim 15, further comprising:

        program code for comparing said expected data with actual data in said event;

        program code for signaling an error if said expected data does not match said actual data; and

program code for signaling an error if said actual data is not expected.

17.   (Original) The apparatus of claim 15, further comprising program code for signaling an error if any of said plurality of separate outgoing transmissions is detected before all of said plurality of separate incoming transmissions have been received.

18.   (Original) The apparatus of claim 15, wherein said program code for monitoring said at least one output of said agent for said event begins monitoring said at least one output for said plurality of separate outgoing transmissions as soon as a first of said plurality of separate incoming transmissions has been received.

19.   (Original) The apparatus of claim 18, wherein said program code for storing said expected data comprises identifying said first of said plurality of separate incoming transmissions using correlative information in said first of said plurality of separate incoming transmissions and further comprising identifying subsequent transmissions of said plurality of separate incoming transmissions by their being contiguously transmitted on a same input of said agent as said first.

20.   (Original) The apparatus of claim 19, wherein said same input of said agent comprises a same physical and virtual input channel.

21.   (Original) The apparatus of claim 18, wherein said program code for storing said expected data comprises identifying each of said plurality of separate incoming transmissions using correlative information in said each of said plurality of separate incoming transmissions to enable gathering and sorting of interleaved transmissions belonging to different stimuli.

22.   (Previously presented) An apparatus for testing an agent in a computer system, comprising:

means for detecting at least one incoming message as it is received by said agent;

means for generating a transaction record corresponding to said incoming message, each transaction record including storage for expectation records associated with that transaction record;

means for generating at least one expected outgoing message, correlated to said transaction record, that should be produced by said agent in response to said incoming message, wherein said at least one expected outgoing message is generated at least in part based on said at least one incoming message; and

means for signaling an error when said agent does not generate said expected outgoing message corresponding to said transaction record.

23.   (Original) The method of claim 1, where the step of signaling an error further comprises signaling an error when said expected output does not occur.

24.   (Original) The method of claim 1, where the step of signaling an error further comprises signaling an error when said expected output does not occur within a predetermined time.

25.   (Original) The method of claim 1, where the step of signaling an error further comprises signaling an error when no transaction record can be identified for an output.

26.   (Original) The method of claim 1, where the step of signaling an error further comprises signaling an error when a transaction record for an output is not recognized.

27.   (Original) The method of claim 1, where the step of signaling an error further comprises signaling an error when a transaction record for an output

signal corresponds to said transaction record corresponding to said input signal, but said output signal is not expected.

28. (Original) The method of claim 1, where the step of signaling an error further comprises signaling an error when a transaction record for an output signal corresponds to said transaction record corresponding to said input signal, but said output signal is generated before said input signal is complete.

29. (New) An apparatus for producing expectations to verify events generated by an agent, comprising:

    a.   at least one computer readable medium; and

    b.   computer readable program code stored on said at least one computer readable medium, said computer readable program code comprising:

        i.   program code for monitoring at least one input of said agent for a stimulus;

        ii.   program code for creating a transaction record corresponding to said stimulus, each transaction record including storage for expectation records associated with that transaction record;

        iii.   program code for generating an expectation of an event, corresponding to said transaction record, based at least in part on said stimulus, wherein said event is expected to be generated by said agent as a result of said stimulus; and

        iv.   program code for signaling an error when said agent does not generate said event corresponding to said transaction record;

wherein said program code for monitoring said at least one input of said agent for said stimulus comprises program code for gathering said stimulus from a plurality of separately transmitted portions;

wherein said program code for gathering said stimulus from said plurality of separately transmitted portions comprises program code for establishing a watch list, said watch list containing an entry for each stimulus for which said separately transmitted portions are being awaited, and wherein said program code for monitoring said at least one input of said agent for said stimulus comprises:

program code for detecting one of said separately transmitted portions at said at least one input;

program code for searching said watch list for said stimulus for which said one of said separately transmitted portions was being awaited; and

program code for adding said one of said separately transmitted portions to said stimulus.